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ABSTRACT

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Self-Perceptions of Ability,
Expectations and Locus of Control
in Elementary Learning Disabled Children¹
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Abstract

Affective development was investigated in 81 learning disabled (LD) and 81 normally achieving (Control) children in grades three to six. The Students' Perception of Ability Scale and the Projected Academic Performance Scale were used to assess academic self-concept and future achievement expectations, respectively. Academic locus of control was tapped by the Intellectual Achievement Responsibility Questionnaire. Strong differences were observed between the LD and Control subjects on these three affective variables. The importance of positive affective development in LD children is discussed. Research and evaluation possibilities using the Students' Perception of Ability Scale, are also considered.

Self-Perceptions of Ability,
Expectations and Locus of Control in
Elementary Learning Disabled Children

Blooms asserts that affective entry characteristics are a crucial element influencing learning and achievement because they help determine "the extent to which a learner will put forth the necessary effort to learn a specific learning task" (Bloom, 1976, p. 104). Numerous writers have attempted to identify and operationalize some of these school-related affective variables. Three of the more promising constructs appear to be academic self-concept (Bloom, 1976; Hamachek, 1978), academic locus of control (Lefcourt, 1976; Phares, 1976), and self-expectations for future achievement (Brophy, 1977; Entwisle & Hayduk, 1978). While academic locus of control has received considerable attention in the literature since studies were initiated by Crandall and his associates (Phares, 1976), relatively little research has been conducted on academic self-concept (in contrast to general self-concept) or academic self-expectations. Moreover, few studies have been reported dealing with the affective characteristics of a group of children which has received considerable attention during the past 15 years, viz., learning disabled (LD) children. This lack of research has occurred despite the growing awareness of the importance of affective variables in school learning (Bloom, 1976; Covington & Beery, 1976).

One reason for the absence of studies on academic self-concept and self-expectations appears to arise from inadequate or non-existent

instrumentation. In terms of academic self-concept, the scales which have been used were developed mainly for use with secondary school children. A major drawback of such scales is their inadequate psychometric development, a feature which characterizes most self-concept instruments (Wyllie, 1974). The recent development of the Students' Perception of Ability Scale (SPAS) by Boersma and Chapman (1977), however, offers a promising instrument for assessing academic self-perceptions in elementary school children. Studies with the SPAS indicate that it has good factor structure and internal characteristics (Boersma, Chapman, & Maguire, (1979), discriminates strongly from general self-concept, moderately predicts end-of-year grade point average (Boersma & Chapman, (1978a), and strongly distinguishes between LD and normally achieving grade three children (Boersma & Chapman, (1978b).

With regard to academic self-expectations few, if any, instruments have been reported in the literature dealing with this construct. To help fill the need for a measure of school-related expectations in elementary school children, Chapman and Boersma (1978) developed the Projected Academic Performance Scale (PAP). As with the SPAS, the factor structure and internal validity of the PAP appears to be good (Chapman & Boersma, Note 1). The instrument also strongly discriminates between LD and normally achieving children, and moderately predicts end-of-year report-card grades (Boersma & Chapman, (1978b).

The availability of the SPAS and PAP scales, then, should facilitate investigation of two crucial affective variables in young school-age

children, viz., academic self-concept and self-expectations.

Academic locus of control is also seen as an important affective variable in learning. This construct reflects the way in which individuals explain their successes and failures (Crandall, Katkovsky, & Crandall, 1965). Those who attribute the source of success and failure to themselves (internal locus of control) and who see within themselves the ability to achieve, tend to obtain higher levels of achievement. On the other hand, individuals who attribute success-failure experiences to others, to luck, or chance (external locus of control), tend to achieve at lower levels (Lefcourt, 1976; Phares, 1976). This link between locus of control and learning seems logical, given that school achievement requires a degree of effort and persistence in academic tasks, and that such behaviors are unlikely to occur if the student sees little relationship between efforts in learning and the outcomes. Little research, however, has been reported with LD children to see if their history of failure is associated with the development of external school-related control perceptions. Accordingly, the present study was undertaken in an attempt to describe academic locus of control, along with academic self-concept and self-expectations, in children classified as learning disabled.

While considerable controversy and uncertainty exists regarding what actually causes and constitutes a learning disability (Chapman, Boersma & Janzen, 1978), there is general agreement that LD children are primarily characterized by having difficulty with regular school learning. Such difficulty is frequently operationalized as significant below grade level performance in one or more academic subjects by children who are

intellectually, physically, emotionally, socially, and culturally "normal" (Chalfant & King, 1976).

The manifest symptoms of learning disabilities are typically varied, but most professionals in the area affirm that learning problems experienced by LD children can be remedied. Research with failure-prone and underachieving children, however, suggests that remedial efforts may be hindered by the development of negative affective characteristics in students who have a history of persistent school failure (Covington & Beery, 1976; Hamachek, 1978).

Numerous clinical studies of LD children support this contention. Griffiths (1970), for example, noted that the one major similarity in 32 LD children treated in a psychoeducational clinic was their low level of self-confidence and self-concept. These children appeared to have a pervading sense of discouragement about the chances of future school success where such skills as reading and math were emphasized. Similarly, Frostig (1963) and Hagin (1961) suggest that poor and inadequate school performance, especially in reading, will adversely effect future learning efforts or outcomes.

To summarize, affective factors clearly seem to influence learning. Furthermore, clinical observations show that such dimensions are associated with learning disabilities. Empirical investigations of affective characteristics in LD children, however, are lacking, since little research has dealt with this problem. Accordingly, the present study was designed to investigate academic self-concept, academic locus

of control, and self-expectations for future achievement in LD children. On the basis of studies and writings cited above, it was predicted that LD students, compared with normally achieving children, would possess lower self-perceptions of ability and expectations of future academic achievement, and that their loci of control would be more external. It was further surmised that negative affective characteristics in LD children would become more noticeable as a result of cumulated failure experiences, and that accordingly, differences between LD and Control children on these variables would therefore increase as a function of grade level.

METHOD

Subjects

One hundred and sixty-two children (108 boys and 54 girls) in grades three to six in two Edmonton middle-class, suburban elementary schools took part in the study. The LD sample consisted of 81 children (54 boys and 27 girls) who were receiving part-time ($1/2$ to 1 hour per day) remedial "resource room" instruction on the basis of a $1\ 1/2$ to $2\ 1/2$ year deficit in one (usually reading) or more school subjects. Control children were randomly selected from the same classrooms after having been stratified on sex. None of the Control subjects had a record of previous learning problems requiring special class remedial assistance. It should further be noted that no child in the study had major "English-as-a-second-language", physical, emotional, or social problems. In terms of age, and socio-economic status (based on father's occupations and

classified according to the Blishen Scale--Blishen, 1967), there were no statistically significant differences between the two groups.

Ability estimates for grades three and four were obtained by Otis-Lennon--Form K IQ scores (Otis & Lennon, 1969), whereas Canadian Lorge-Thorndike IQ's (Lorge, Thorndike & Hagen, 1967) were used for grades five and six. There were no significant differences between combined grades three and four IQ scores ($\bar{X}_{LD} = 103.24$; $\bar{X}_C = 107.22$), although there was a trend for Controls to have higher IQ's. On the other hand, combined grades five and six mean IQ scores were significantly higher for Controls ($\bar{X}_{LD} = 97.89$; $\bar{X}_C = 109.80$; $t = 5.26$, $df = 70$, $p < .001$). Thus, while both groups were within the average range, there was a tendency for LD children to have slightly lower scores. This difference is probably due to reading difficulties experienced by them on the "group administered" IQ tests, rather than by intellectual differences between the groups as such.

Instruments

Academic self-concept was assessed with the Student's Perception of Ability Scale (SPAS), developed by Boersma and Chapman (1977). Technical data on this instrument have only recently been made available (Boersma, Chapman & Maguire, (1979), however, the scale appears to be one of the few adequately developed measures for assessing academic self-concept in elementary school children. The SPAS contains 70 forced-choice "YES-NO" items relating to performance in five basic elementary areas (reading, spelling, language arts, arithmetic and penmanship), and to

school in general. These items contribute to six subscales, derived through factor analysis, which include Perception of General Ability, Perception of Arithmetic Ability, General School Satisfaction, Perception of Reading and Spelling Ability, Perception of Penmanship and Neatness (each containing 12 items), and Confidence in Academic Ability (10 items). Cronbach's alpha for the Full Scale is .915, while test-retest reliability over a four to six week period is .834. Studies with the SPAS indicate that it discriminates strongly from general self-concept, and moderately ($r = .49$) predicts end-of-year grade point average (Boersma and Chapman, 1978a).

Academic locus of control was assessed with the short form of the Intellectual Achievement Responsibility Questionnaire (Crandall, Katkovsky & Crandall, 1965). This form of the Intellectual Achievement Responsibility Questionnaire (IAR) has been specifically recommended by Crandall (1968) for use with elementary school children, and deals with children's beliefs in reinforcement responsibility in intellectual-achievement situations. One-half of the 20 items deal with internal responsibility for successful experiences (I+), whereas the other half assesses internal responsibility for failure (I-). Phares (1976) notes that the IAR has "acceptable" psychometric characteristics and that it is probably the most suitable measure of perceived control in children.

Self-expectations for future academic achievement were assessed with the Projected Academic Performance Scale (PAP) developed by Chapman and Boersma (1978). The PAP scale contains 42 items which tap anticipated achievement levels in six areas: reading, spelling, language arts,

math, social studies, and science. For each subject, expected achievement is rated in terms of three future time dimensions (short, medium and long). Subjects indicate their expectations by selecting one of four possible weighted future levels of achievement.

Procedure

The three instruments were administered to subjects in their regular classroom groups, as part of a larger study. Students were informed that the questionnaires were designed to find out something about their "feelings and attitudes towards school". Emphasis was placed on the need for honest responses, with children being told that neither parents nor teachers would have access to their answer booklets. Testing was conducted at two times, always by the same experimenter (female). The SPAS and PAP were administered on the first occasion (testing time about 40 minutes), and the IAR on the second occasion (testing time about 20 minutes), usually one day later. All items were read by the tester to the students in order to alleviate possible confounding effects due to reading problems.

RESULTS

Full and subscale SPAS, IAR, and PAP scores were analyzed by means of a 2 X 2 X 4 analysis of variance design. The respective variables were Group (LD - Control), Sex (Male- Female), and Grade Level (3, 4, 5, & 6).

Academic Self-Concept

Table 1 presents means, and standard deviations for subscale and Full Scale SPAS scores. In terms of academic self-concept, the LD group obtained significantly lower scores (all p values $< .01$), on all subscales, with the exception of Penmanship/Neatness. Furthermore, the 11.84 difference between the groups on the Full Scale was significant ($\bar{X}_{LD} = 37.38$, $\bar{X}_C = 49.72$; $F = 33.58$; $df = 1, 146$; $p < .001$), thus indicating that LD children have considerably lower general self-perceptions of ability than Control subjects. No significant grade effects were found, and there was only one significant sex effect (Penmanship/Neatness). Here girls obtained higher scores than boys ($\bar{X}_G = 8.54$, $\bar{X}_B = 7.32$; $F = 4.68$; $df = 1, 146$, $p < .05$). There were no significant interactions.

Insert Table 1 about here

Specific SPAS subscale findings are of additional interest. Considering that most subjects in the LD sample had been identified as learning disabled on the basis of reading problems, the finding that LD children indicated significantly lower self-perceptions of ability than Control children on the Reading/Spelling subscale ($\bar{X}_{LD} = 6.89$, $\bar{X}_C = 10.07$; $F = 29.12$; $df = 1, 146$; $p < .001$) is not really surprising. These more negative attitudes towards reading and spelling abilities, however, appear to have been generalized to other academic facets. Thus, the LD subjects reported more negative self-perceptions on the subscales tapping Arithmetic

Ability ($\bar{X}_{LD} = 7.33$, $\bar{X}_C = 9.68$; $F = 17.55$; $df = 1,146$; $p < .001$), and General Ability ($\bar{X}_{LD} = 5.67$, $\bar{X}_C = 8.37$; $F = 29.12$; $df = 1,146$; $p < .001$). Furthermore, these LD children also indicated more negative attitudes toward school in general (School Attitude: $\bar{X}_{LD} = 7.44$; $\bar{X}_C = 8.73$; $F = 7.19$; $df = 1,146$; $p < .001$) and expressed less confidence in their academic ability (Confidence: $\bar{X}_{LD} = 3.32$, $\bar{X}_C = 4.64$; $F = 12.61$; $df = 1,146$; $p < .001$). Overall, then, the results for individual subscales suggest that problems in reading are associated with the development of fairly broad negative self-perceptions of ability, along with more negative school attitudes and less confidence generally in academic tasks. For all subscales, these different self-attitudes were apparent at the grade three level, and remained constant through to grade six.

Academic Locus of Control

For academic locus of control, analyses were performed separately on the I+ and I- subscales of the IAR. Table 2 presents individual means and standard deviations for the respective variables. The only statistically significant main effect for the I+ subscale was for groups. Here LD subjects obtained lower scores than Controls ($\bar{X}_{LD} = 6.26$, $\bar{X}_C = 7.36$; $F = 9.46$; $df = 1,146$; $p < .001$). These data indicate that LD children have a tendency to ascribe responsibility for successful school-related outcomes to external sources, such as the teacher's generosity or the easy nature of the task, more so than do Control children.

With respect to the I- subscale, the only significant effect was for grade level ($F = 2.70$; $df = 3,146$; $p < .005$), where there was a tendency for older students in both groups to obtain higher scores. No significant effects were observed for sex, nor were there any significant interactions.

The failure to find a group effect on this subscale indicated that both LD and Control children have similar attributions of responsibility for failure outcomes. Moreover, these attributions appear to become increasingly internal for both groups as a function of grade level, thereby suggesting a growing willingness to accept responsibility for failure, as opposed to blaming others or the task.

Insert Table 2 about here

Self-Expectations

Table 3 presents means and standard deviations for LD and Control children on the PAP scale. Analyses of PAP scores indicated that LD subjects have significantly lower overall expectations for future academic success than the Control subjects (Full Scale: $\bar{X}_{LD} = 114.79$, $\bar{X}_C = 123.88$ $F = 7.76$; $df = 1, 146$; $p < .01$). These lower scores were reflected specifically in the subjects Spelling ($\bar{X}_{LD} = 18.21$; $\bar{X}_C = 20.96$; $F = 20.20$; $df = 1, 146$; $p < .001$), Reading ($\bar{X}_{LD} = 19.06$; $\bar{X}_C = 21.80$; $F = 14.70$; $df = 1, 146$; $p < .001$), and Math ($\bar{X}_{LD} = 19.75$, $\bar{X}_C = 21.42$; $F = 4.18$; $df = 1, 146$; $p < .05$). No significant grade or interactions effects were observed, and the only sex effect was for Science, where boys obtained higher PAP scores than girls. Thus, results with the PAP indicate that LD children have lower expectations for the core elementary areas of spelling, reading, and math, but that their predictions with respect to

language arts, science, and social studies are not significantly different from those of normally achieving students. This finding is not surprising since the latter three subject areas are probably less clearly conceptualized in children of these ages.

Insert Table 3 about here

DISCUSSION

In general, the results indicate that LD and normally achieving children are clearly differentiated in terms of the affective variables investigated in this study. The history of school failure which typifies LD students appears to be associated with more negative self-perceptions of ability, external attributions of responsibility for school successes, and lower expectations of future success in academic tasks. Moreover, this negative tendency in LD children was well established at grade three and remained constant through to grade six.

In terms of specific findings, the locus of control results are of particular interest. The significant LD - Control group differences on the I+ subscale of the IAR, along with a significant grade level (but not group) effect on the I- subscale, suggests that LD children accept a similar degree of responsibility for their failures as normally achieving children, but a comparative inability to take credit for their successes. Moreover, failure attributions become more internal over grade level, whereas success attributions remain constant. If, as the findings suggest,

LD children view successful school outcomes as only partly contingent upon effort and ability, while at the same time viewing failures as a result of lack of effort and ability, then it is likely that these children will eventually "give up" on themselves and quit trying. Under these circumstances, LD children will probably develop strong doubts about their abilities to successfully complete academic tasks.

The findings for academic self-concept with the SPAS clearly support this latter suggestion. Despite the fact that LD students are well within the normal range of ability, their self-perceptions of ability are significantly lower on all subscales (except Penmanship/Neatness) in comparison to normally achieving children. So, by grade three, the LD subjects not only have more negative self-perceptions of ability in reading, spelling, and math (as might be expected), but they also indicated more negative attitudes and less confidence with respect to their academic abilities in general.

In view of these lower academic self-concepts, it is not surprising that LD children should express comparatively pessimistic predictions regarding future school performance. Rotter (1954) believes that self-expectations for the outcomes of behavior depend largely on self-perceptions of ability, as these are synthesized from feedback obtained with respect to past successes and failures. LD children, with their histories of failure experiences, not only have lower perceptions of their ability in reading, spelling, and math, but they also expect to perform less well in those subjects in the future. In line with this it is interesting to note that these lower expectations have

not yet generalized to other school subjects. Indeed, the failure to find significant expectation differences between the LD and Control children for language arts, social studies, and science, may be an indication that these predominantly activity-based subjects are not as threatening for LD children as the more abstract core areas.

Considered together, the results of the present study indicate that by grade three, LD subjects have already developed relatively lower self-perceptions of ability, and concomitantly lower expectations for future school success. In addition, negative academic self-concepts have already probably contributed to the feeling in these children that when successful school outcomes do occur, the cause lies more with external factors than with their own abilities. In short, the LD children appear to be "giving up" on themselves.

Without a reversal in this trend of negative affective development, the prospects for LD children performing at levels more commensurate with their actual abilities seem slight. As numerous writers have pointed out, successful school learning requires a positive belief in students that they have sufficient ability to successfully complete most tasks (Brookover, et al., 1967), that they expect to be successful (Bandura, 1978), and that their successes are seen as due primarily to their own efforts and abilities rather than being caused by external and uncontrollable factors (Rotter, 1966). In the light of these prerequisites for school learning, and in view of the findings of negative affective characteristics in LD children, remedial strategies designed to restore confidence and credibility in their

abilities appear to be particularly warranted as an important supplement to current cognitive remediation programs in the area of learning disabilities.

Finally, the availability of the Perception of Ability and Projected Performance scales offers two promising instruments for use in research and remedial evaluation with special class children. In particular, the SPAS appears to be one of the few measures of academic self-concept that has good psychometric characteristics and which can be used for research with elementary school children. Further, the Perception of Ability scale also promises to be a useful instrument for assessing change in academic self-concept as a function of remedial intervention.

Reference Note

1. Chapman, J. W., & Boersma, F. J. Technical data on the Student's Projected Performance Scale. Unpublished manuscript, University of Alberta, 1979. (Available from the authors at the Department of Educational Psychology, University of Alberta, Edmonton, Alberta, Canada, T6G 2G5).

References

- Bandura, A. The self system in reciprocal determinism. American Psychologist, 1978, 33, (4), 344-358.
- Blishen, B. R. A socio-economic index for occupations in Canada. Canadian Review of Sociology and Anthropology, 1967, 4, 41-53.
- Bloom, B. S. Human Characteristics and School Learning. New York: McGraw-Hill, 1976.
- Boersma, F. J., and Chapman, J. W. The Student's Perception of Ability Scale. Edmonton, Alberta: University of Alberta, 1977.
- Boersma, F. J. & Chapman, J. W. Comparison of the Student's Perception of Ability Scale with the Piers-Harris Children's Self-Concept Scale. Perceptual and Motor Skills, 1978a, 47, 827-832.
- Boersma, F. J., & Chapman, J. W. Perceptions and Expectancies: Their Influence on Cognitive and Affective Development in Learning Disabled Children. (Final Report, Canada Council Research Grant No. S76-0624). Edmonton, Alberta: University of Alberta, 1978b.
- Boersma, F. J., Chapman, J. W., & Maguire, T. O. Technical data on the Student's Perception of Ability Scale. Edmonton, Alberta: University of Alberta, 1979. (ERIC Document Reproduction Service No. TM008 213).
- Brookover, W. B., Erickson, E. L., & Joiner, L. M. Self-Concept of Ability and School Achievement, III: Relationship of Self-Concept to Achievement in High School. U.S. Office of Education, Cooperative Research Project NO. 2831. East Lansing: Office of Research and Publications, Michigan State University, 1967.
- Brophy, J. E. Child Development and Socialization. Chicago: SRA, 1977.

- Chalfant, J. C. & King, F. S. An approach to operationalizing the definition of learning disabilities. Journal of Learning Disabilities 1976, 9, 4, 34-39.
- Chapman, J. W. & Boersma, F. J. The Projected Academic Performance Scale. Edmonton, Alberta: University of Alberta, 1978.
- Chapman, J. W., Boersma, F. J., & Janzen, H. L. The learning disabled child: An educational dilemma. Teaching Atypical Students in Alberta, 1978, 7, 30-37.
- Covington, M. C. & Beery, R. G. Self-Worth and School Learning. New York: Holt, Rhinehart & Winston, 1976.
- Crandall, V. C. Refinement of the IARQ Scale. NIMH Progress Report, December, 1968. Grant No. MH-02238, 60-67.
- Crandall, V. C., Katkovsky, W., & Crandall, V. J. Children's beliefs in their own control over reinforcement in intellectual-academic situations. Child Development, 1965, 36, 91-109.
- Entwisle, D. R. & Hayduk, L. A. Too Great Expectations: The Academic Outlook of Young Children. Baltimore: The Johns Hopkins University Press, 1978.
- Frostig, M. Visual perception in the brain-injured child. The American Journal of Orthopsychiatry, 1963, 33, 665.
- Griffiths, A. N. Self-concept in remedial work with dyslexic children. Academic Therapy, 1970, 6, 125-133.
- Hagin, R. A. The relationship of self-concept, sex role, preference and religion-cultural background to academic performance of ten year olds of predominantly middle class backgrounds. Dissertation Abstracts, 1972, 32 (8-a), 4348.

- Hamachek, D. E. Encounters With the Self, 2nd Ed. New York: Holt, Rhinehart & Winston, 1978.
- Lefcourt, H. M. Locus of Control: Current Trends in Theory and Research. Hillsdale, New Jersey: Lawrence Erlbaum, 1976.
- Lorge, I., Thorndike, R. L., & Hague, E. Canadian Lorge-Thorndike Intelligence Tests. Toronto: Thomas Nelson & Son, 1967.
- Otis, A. S., & Lennon, R. T. Otis-Lennon Mental Ability Tests. New York: Harcourt, Brace and World, 1969.
- Phares, E. J. Locus of Control in Personality. Morristown, New Jersey: General Learning Press, 1976.
- Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80 (Whole No. 609).
- Rotter, J. B. Social Learning and Clinical Psychology. Englewood Cliffs, New Jersey: Prentice-Hall, 1954.
- Wylie, R. C. The Self-Concept, Volume 1: A Review of Methodological Considerations and Instruments. Lincoln, Neb.: University of Nebraska Press, 1974.

Footnotes

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²Copies of the paper are available from the first author at the Department of Educational Psychology, University of Alberta, Edmonton, Alberta, Canada, T6G 2G5.

Table 1
Summary Data for Perception of Ability
Full and Subscale Scores

Scale	LD		Control		F ^a	p
	Mean	S.D.	Mean	S.D.		
Full Scale	37.88	12.66	49.72	10.64	33.58	.000
General Ability	5.67	2.76	8.37	2.79	29.12	.000
Arithmetic	7.33	3.19	9.68	2.80	17.55	.000
School Satisfaction	7.44	2.98	8.73	2.31	7.19	.008
Reading/Spelling	6.89	3.65	10.07	2.30	45.03	.000
Permanship/Neatness	7.22	3.26	8.22	3.01	3.39	.068
Confidence	3.32	2.07	4.64	2.17	12.62	.000

^adf = 1, 146

Table 2

Summary Data for IAR I+ and I- Scores

Group	n	I ⁺				I ⁻			
		LD		Control		LD		Control	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Grade 3	44	6.14	1.91	7.18	1.90	5.46	2.37	5.09	3.03
Grade 4	46	6.00	1.91	7.26	1.82	6.65	1.90	6.26	2.44
Grade 5	34	6.41	2.20	7.18	1.54	5.65	3.09	6.24	2.67
Grade 6	38	6.58	2.78	7.84	1.46	7.26	2.15	7.05	2.14
Combined	162	6.26	2.08	7.36	1.73	6.26	2.48	6.12	2.69

Table 3
Summary Data for Projected Performance
Full and Subscale Scores

Scale	LD		Control		F ^a	P
	Mean	SD	Mean	SD		
Full Scale	114.79	16.67	123.88	18.06	7.76	.006
Spelling	18.21	3.39	20.96	3.83	20.20	.000
Reading	19.06	3.57	21.80	4.03	14.70	.000
Language Arts	18.32	3.52	19.24	4.15	1.79	NS
Math	19.75	4.27	21.42	4.81	4.18	.042
Social Studies	19.28	3.80	20.20	4.67	1.65	NS
Science	20.16	3.97	20.26	4.64	.20	NS

^adf = 1, 146